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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/585,330	07/06/2006	Saila Karvinen	0696-0245PUS1	2708
2292 7590 03/03/2010 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			EXAMINER QIAN, YUN	
			ART UNIT 1793	PAPER NUMBER
			NOTIFICATION DATE 03/03/2010	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/585,330	<b>Applicant(s)</b> KARVINEN, SAILA	
	<b>Examiner</b> YUN QIAN	<b>Art Unit</b> 1793	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period **will** apply and **will** expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply **will**, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 December 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is **non-final**.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Election/Restrictions*

Applicant's election of Group I claims 1-9 without traverse in the reply filed on December 16, 2009 is acknowledged. The claim 10 has been cancelled.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4 and 6-9 are rejected under 35 U.S.C.102 (b) as being anticipated by Chopin et al. (US 6,362,121).

Regarding claims 1-3, Chopin et al discloses a method of coating substrate (i.e. glass surface, ceramic or vitroceramic) with a composition comprising a photocatalytic nanocrystalline TiO<sub>2</sub>, water, and organic dispersion. The size of the crystals is 5-80 nm and the level of anatase in TiO<sub>2</sub> particles of the coating is great than 50% by mass (abstract, col.2, line 7-col.3, line 12, col.11, line8-11, claims 1-8).

The coated substrate exhibits “dirt-repellent” and/or “anti-condensation” glazing physical properties (co.6, lines 16-67).

Although Chopin et al. does not explicitly teach the physical properties as per applicant claims 1-3, since the reference teaches the same claimed reagents and

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composition, the physical properties of composition (thixotropic, agglomerates and sedimenting in the water) would necessarily follow as set forth in MPEP 2112.01(II).<sup>1</sup>

Regarding claim 4, as discussed above, the crystal size of TiO<sub>2</sub> in the composition taught by Chopin is from 5-80 nm, which is encompassed by the recited claim.

Regarding claim 6-7, as discussed above, the composition taught by Chopin et al. comprises at least 50% by mass of TiO<sub>2</sub>, preferably greater than 80%, and organic dispersion with at most 10% water (col.3, lines 1-4, and col. 11, lines 7-11)

Regarding claim 8, the composition taught by Chopin et al. contains hydrophilic inorganic oxide ZnO and SnO<sub>2</sub> as the instant claim (col. 4, line 65).

Regarding claim 9, the compounds of the coating is radiated to initiate radical reactions which cause oxidation of organic product and degrade of the dirty marks (col.1, lines 52-65).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

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<sup>1</sup> "Products of identical chemical composition can not have mutually exclusive properties." A chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present. In re Spada, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990)

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 5 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chopin et al. (US 6,362,121) in view of Tanaka et al. (US 6,828,273).

As discussed above, although Chopin et al. teaches the use of nanocrystalline TiO<sub>2</sub> (5-80 nm), he does not specifically disclose the specific surface area of TiO<sub>2</sub> as per applicant claim 5.

Tanaka et al. teaches high activity photo catalytic particles comprising at least 40% of TiO<sub>2</sub>, with a BET specific surface area of about 10 to 300 m<sup>2</sup>/g (col.9, line 55-col.10, line 7). The references differ from Applicant's recitations of claims by not

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disclosing identical ranges (20 to 300 m<sup>2</sup>/g). However, the reference discloses "overlapping" ranges, and overlapping ranges have been held to establish prima facie obviousness (MPEP 2144.05).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Chopin et al. and Tanaka et al. to obtain the invention as specified in the claim 5, motivated by the fact that the photocatalytic particles exhibits high activity even when irradiated with a light source of low quantity of light (col.4, lines 1-3). Since both of them teach the use of photocatalytic TiO<sub>2</sub> particles, it would have a reasonable expectation of success.

Regarding claim 9, Tanaka et al. teaches applying the photocatalytic particles uniformly onto a plane and irradiate with light in dry air (col.8, line 31-36).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to YUN QIAN whose telephone number is (571)270-5834. The examiner can normally be reached on Monday-Thursday, 10:00am -4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Melvin Curtis Mayes can be reached on 571-272-1234. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

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Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/YUN QIAN/  
Examiner, Art Unit 1793

February 26, 2010

/Melvin Curtis Mayes/  
Supervisory Patent Examiner, Art Unit 1793